A new genus, *Symplegma* (p. 144), has been formed for a remarkable colony obtained at Bermuda. This form differs from all the other Distomidæ in having internal longitudinal bars in the branchial sac, but it is really very doubtful whether the genus ought to be placed in this family. I am rather inclined to suspect that *Symplegma* will turn out to be an aberrant form allied to the Botryllidæ (see p. 397).

The large family Polyclinidæ is represented in the Challenger collection by forty-three species and at least three well-marked varieties. One species (*Aplidium fallax*) was previously known, the rest are all new to science. Ten genera are represented, and five of these (*Pharyngodictyon*, *Tylobranchion*, *Atopogaster*, *Morchellioides*, and *Psammaplidium*) are new groups (see p. 151) formed for the reception of Challenger species.

The most remarkable form in the family is undoubtedly *Pharyngodictyon mirabile* (see p. 153), in which the branchial sac is in the curious degenerate condition found in *Culeolus* amongst Simple Ascidians. The internal longitudinal bars and the transverse vessels form a square-meshed network, which is not broken up into stigmata, as the system of fine longitudinal vessels seems to be entirely absent. This peculiar condition of the branchial sac seems to be associated with the abyssal zone, as it has apparently been evolved independently in at least four different groups of deep-sea Ascidians, viz., *Culeolus*, *Fungulus*, *Bathyoncus*, and *Pharyngodictyon*, while it has not been found in any forms from shallow water.

In *Pharyngodictyon* then, internal longitudinal bars are present in the branchial sac, while they are absent in all the other Polyclinidæ. In *Tylobranchion speciosum*, however, the transverse vessels bear curious papillæ (see Pl. XXII. fig. 7), which are probably rudimentary connecting ducts which have lost their proper function, as there are no internal longitudinal bars present to support them, but which have not yet disappeared. The branchial sac of *Tylobranchion speciosum* is therefore in an intermediate condition of degeneration between that of *Pharyngodictyon mirabile* and that of the other Polyclinidæ (see phylogeny of the group, p. 390).

The genus *Atopogaster* includes some new species of large size which have the stomach-wall more or less transversely folded, an unusual condition in Ascidians.

The curious group of species characterised by that irregularly thickened condition of the stomach-wall called areolated by Giard, is represented in the collection by three forms all new to science, viz., *Morchellioides affinis*, *Morchellium giardi*, and *Sidnyum pallidum*. The first of them (see p. 177) has eight lobes around the branchial aperture, while in most of the Compound Ascidians the branchial apertures are always six-lobed.

The remaining new genus, *Psammaplidium*, is closely allied to *Aplidium*, but has the test strengthened by imbedded sand-grains (see p. 237 and Pl. XXXI. fig. 9). It contains nine new species, all from the southern hemisphere.

The Polyclinidæ as a family are very widely distributed, but the majority of the Challenger species are from the far south.